Mount Diablo Astronomical Society

Diablo MoonWatch

September 2012

General Meeting

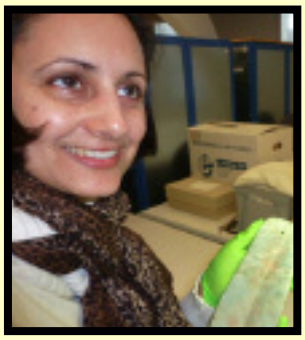
Tuesday September 25, 2012

An Introduction to Maya Astronomy, Past and Present

By Ms. Nancy Alima Ali, M.Ed.

Doors open at 6:45 p.m.
Concord Police Association Facility
5060 Avila Road, Concord

The Maya are a diverse group of people who are indigenous to the area now known as southern Mexico, Guatemala, Honduras, El Salvador and Belize.



Ms. Nancy Alima Ali holding the Leiden Plaque (a Maya artifact from Guatemala dated from approximately 300 AD)

The Maya have a long and rich history of astronomical knowledge based on unaided-eye observations of the Sun, Moon, stars and planets. This heritage is evident in Maya architecture, mythology, writing and calendar systems. This talk will explore some of the connections between astronomy and Maya culture, with a focus on temple structures in Palenque and Chichen Itza. It will also highlight some of the contemporary practices in the Maya community that keep indigenous astronomical and cultural knowledge alive today.

Ms. Nancy Alima Ali, M.Ed., is currently a Coordinator of Public Programs at the Center for Science Education at Space Sciences Lab at the University of California, Berkeley. For over 13 years, Ms. Ali has been active in both formal and informal education as a classroom teacher, college instructor, museum educator, curriculum developer and program manager. Prior to joining the Center for Science Education, she served as the Science Education Manager at Bishop Museum in Honolulu, Hawaii. Ms. Ali also managed the Imaginarium planetarium, as well as developed and taught a college-level archaeoastronomy course at Windward Community College in Kaneohe, Hawaii. In addition, Ms. Ali is a Solar System Ambassador with NASA's Jet Propulsion Laboratory. A graduate of Lesley University in Cambridge, Massachusetts, her Master of Education thesis focused on integrating astronomy and culture in informal education settings.

New Location

As of January 2013 onward, our regular monthly society meeting nights are moving from the Concord Police Academy to the Lindsay Wildlife Museum in Walnut Creek at the usual day and time every month.

Please read for more details in the October edition of Moonwatch.

What's Up

Fermi's Paradox 61 Years Later: What would Fermi say if he were here today?

by Jim Scala

Sixty two years ago, at the Los Alamos National Labs, some of the world's greatest scientists had intellectual discussions during their lunch breaks. One recurring discussion centered on intelligent life in our galaxy. Recognizing that there are upwards of 300 billion stars, many of them like our sun and

(Continued on the last page)

President's Corner

Adventures In Aperture Fever (Part 3)

by Chris Ford

This is the third and final part in a series of three Presidents corners, the first article of which was published in March 2011 and the second in February 2012. In writing them, I aimed to describe the decision process associated with specifying and ordering a custom made large aperture Newtonian reflector at the very fast focal ratio of F/3.3, both as a case study in current trends in large aperture amateur telescopes and to also relate the experience should anyone be considering similar.

The completed telescope in Tom Osypowski's workshop. (The truss poles still need to be anodized) Note the top and bottom slide out white covers that completely seal the mirror box from dust during storage and transport.

To summarize earlier articles, I have been looking for the largest possible aperture compact enough to fit in a medium sized SUV, manageable by one person with no need for large ladders, fully equipped with tracking and GOTO capabilities, and though primarily for visual usage, adaptable for photographic and video-astronomy purposes.

My research eventually led me to decide on a 24" F/3.3 aluminum telescope structure that while superficially resembling a Dobsonian could more accurately be described as an alt/azimuth Newtonian. The order was eventually placed in May 2011 with Tom Osypowski of Equatorial Platforms in Grass Valley CA for his SpicaEyes configuration, and who is widely known for his Dobsonian equatorial tracking platforms. The 24" F/3.3 primary and 5.5" secondary optics were ordered at the same time from Mike Lockwood who is now probably the premier supplier of the largest fast focal ratio mirrors. (Up to 50" and more) Knowing it would take over a year to assemble everything to specification, I settled down for a substantial wait.

Throughout those long months, Tom Osypowski kept me very well informed on the status of my telescopes construction as described in my previous two articles. However, the pacing factor that determined the final delivery date was not the the telescope structure and its associated drive and GOTO mechanisms but rather the mirror from Lockwood optics. As is fairly common with any custom hand-made product, the initial mirror delivery estimate of December 2011 slid some months into the spring of 2012, and was eventually delivered to Tom in April 2012 for final integration into the already completed telescope. It also transpired that the glass supplier who generated the blank for my mirror was a little short on the radius of curvature, so Mike Lockwood asked if he could grind the mirror to a slightly faster

The removable transport wheels and wooden carrying handles (the only wooden elements in the entire telescope) all set for positioning and loading.

During assembly, the short F/3.25 focal length is very evident. The cage with focuser can be rotated into different positions when attached to the upper ring. The Sidereal Technologies slip clutch drive system allowing the telescope to be manually aimed without de-clutching or losing the GOTO pointing model is also evident.

Adventures In Aperture Fever (Part 3) *(Continued from the previous page)*

F/3.25 rather than F/3.3. In fact I was happier with a slightly faster focal ratio as the focal length (and thus zenith height) of the telescope reduced by 1.2" to 78". Having instructed Mike to proceed he spent several days tweaking the final figure of the mirror, and after sending it to OMI for coating, the mirror and its matching 5.5" secondary were shipped to Tom Osypowski who after confirming it star tested to his expectations, informed me that I could take delivery of my completed telescope this June 2012.

One of the most useful and simple accessories is the large tray for eyepieces, GOTO controllers, drinks, sandwiches, and anything else that moves with the telescope. Everyone should have one of these!

There was and is something very special in taking ownership of an instrument in which every component feels that it has been carefully considered and engineered for its purpose as part of a comprehensive observational *system* and which has been executed with a clean functional simplicity. This is a telescope that seen both disassembled and assembled looks very distinctive and the pictures give a good sense of its solidity. I spent the first couple of weeks as a new owner becoming familiar with it, refining my collimation procedures, and rolling it in and out of my garage for some suburban sky tests. Even at that early stage I was impressed by the sharp quality of the stars from edge to edge through a Paracorr 2 (Not really an "accessory" but a fundamental part of the optical train) and the deep contrast of the visual field. The snap to focus was also very obvious early on with no mushiness, a slight tweak on the feather touch and the object was immediately sharply in focus, clear and crisp. There has been a lot of discussion in the astronomy community for and against very fast focal length mirrors for visual usage, (especially the thin 1.6" mirror I selected) but in no way could I see any deficit in the quality of the view compared to more traditional longer focal length Newtonian's that I have previously observed through.

The completed 24" F/3.25 telescope fully baffled and shrouded outside Tom Osypo-wski's workshop ready for star testing.

So how after such a long wait does the completed telescope perform under the dark skies that are its real element? Has it met expectations?

Close up of the focuser with Glatter laser collimator, and 80mm Stellarvue Raptor finder-scope.

To provide context to the answer to these questions I will digress slightly and explain what my expectations are. In recent years I have been mainly engaged in astrophotography with 5", 6" and 7" apochromatic refractors, and though I would consider myself an experienced visual observer, most of it has recently been through these smaller aperture instruments, a 10" Maksutov, or through larger Dobsonian's belonging to others. What I sought for myself was a solidly engineered and high quality light bucket, knowing that a well designed large aperture Newtonian with premium optics can deliver a visual experience

Adventures In Aperture Fever (Part 3) (Continued from the previous page)

that is superior to that of smaller refracting or compound telescopes certainly in resolution and light grasp, but also at least comparable aesthetically. I have looked through a lot of poorly figured or (more usually) poorly collimated Newtonian's with puffball stars on low-contrast backgrounds in my time to know what I did not want, so finding the right combination of structure and optics that could really deliver close to "refractor-like" views consistently took a considerable while to determine. Above all I was looking for a stiff structure with low vibration and good damping that would hold colllimation extremely precisely while tracking throughout a large motion range, and after some hands on evaluation, all of this led me to select Tom Osypowski's SpicaEyes design.

A view of the partially un-shrouded telescope showing truss tubes and low profile mirror box.

My first light experience under dark skies of the 24" F/3.25 over three nights at the Golden State Star Party (GSSP) in July 2012 confirmed all the above attributes and more. The eye candy objects such as M17, M16, M20, M51 etc, through Ethos eyepieces from 21mm down presented exceptionally detailed views with a brightness and resolution I have rarely if ever experienced before. The aesthetic appeal and impact of globular clusters was as good as through any large refractor, but at far higher levels of detail revealing the cores cleanly. The double cluster through my 31mm Nagler Type 5 was especially beautiful despite an "illegal" 9.5mm exit pupil, conveying an effect of bright diamond dust on a velvety black background. There were a number of experienced large aperture observers at the GSSP who spent significant time observing through my new telescope, all of whom commentated on the exceptional contrast and clarity of the Lockwood optics.

A particularly challenging object was Campbell's Hydrogen Star, a small planetary nebula that I first observed through the historic 60" reflector on Mount Wilson, and which has become a lifetime memory and personal benchmark test. Seeing this central star surrounded by a perfect bright red ring was quite unforgettable and an object that I just had to observe again. After entering the RA/DEC coordinates the telescope slewed to the right area. This object is buried in one of the busier parts of Cygnus and it takes some teasing out of a rich star field in a 21mm Ethos. However the clarity of the telescopes optics quickly revealed a softer starlike object surrounded by a ring, and the application of higher magnification (eventually 5mm turned out to be the sweet spot) fully revealed Campbell's Hydrogen Star with its red ring, clear, colorful, and in high contrast. (MDAS member Nick Tsakoyias called it "The Telrad")

The telescope is compact enough when disassembled to fit in a medium sized SUV with just some extendible ramps needed to roll it up into. Bob Schillings from Florida keeps watch.

Of course these descriptions are a subjective experience not easily relayed unless actually experienced in person, and I am certainly not blind to any self-bias from the sheen of a new purchase. However to see such sharp and high contrast views really brought home what a precisely figured mirror in a well designed Newtonian properly collimated under dark skies can do. The Lockwood mirror, the overall design and engineering of Tom Osypowski's structure, its slip clutch drive and tracking, the mirror support system, and a host of individual stylistic design touches, all worked together as an integral system and delivered in a way that made the wait worth while. I also realize in hindsight that I did

Adventures In Aperture Fever (Part 3) *(Continued from the previous page)*

Two initial Mallincam video test images of NGC4565 and M82 as part of the optics testing.

not even worry about mirror cooling, that as soon as it was dark I was off observing with no local mirror seeing issues that I was conscious of even though the days were 90+ and the nights down in the 40's. The mirror stayed in thermal equilibrium without any evident aberrations vindicating any fears about "going thin" with only 1.6" of mirror thickness.

In summary my new 24" F/3.25 Lockwood mirror and 5.5" secondary mounted in a Tom Osypowski Spica Eyes telescope appears to be an excellent combination.

I believe I am now acquainted enough with the optics under a range of observing conditions to be aware of any negative issues and I can find none so far. Certainly I would be happy to share the views with any society member on top of Mount Diablo or at any other event. If you have any questions on the experience of ordering a custom made telescope like this, the decisions and compromises involved, I would be more than happy to discuss them.

Chris Ford

Your Help Would Be Greatly Appreciated

Our association needs a few members to come at 6:30 p.m. before our monthly meeting which starts at 7:15 p.m. to help in seting up the chairs and other elements needed to conduct the general meeting.

Similarly at the end of each meeting the chairs and tables have to be removed, the room has to be cleaned and the garbage emptied.

Thank you for your help.

One Giant Leap

By Nathaneil Bates

I had a whole topic that I intended to write about, but it seems inappropriate to let the passing of a great explorer go unnoticed. In a day and age of cynicism and distrust, a word must be said for someone who represented unity in a nation divided over war and social change. Neil Armstrong was the first to land on an alien world, a moon if not a planet, but still a solid rock. The hopes of humanity rode with Armstrong and the crew. His was one small step for a man, one giant leap for mankind. Dropping the "a" was forgiven him because it was, after all, really a small step for man in a giant cosmos. The moon is but a short distance from the Earth, a stepping stone to a huge open field of stars with distances not so forgiving. The giant leap for mankind, if it really was a giant leap, was only beginning.

Neil Armstrong was a paradoxical explorer. A great many of the explorers of Earth's past have also been conquerors. They were heroes to their home countries, but something else entirely to the conquered.

In the case of Neil Armstrong, he was a hero to all nations. He was a conqueror of no one.

The lunar Astronauts did not dispossess natives. They collected rocks and played golf. Earth's heroes spoke of a historic advance of all humankind in their rhetoric, not of claiming territory for a crowned head. Finally, their banner was one of science and not of fanaticism. The astronauts inspired hope in the hearts of nations at enmity with the United States, not fear. Even the Russians congratulated us, and perhaps saw in the triumph of free scientific inquiry a quiet sense of hope for the triumph of freedom in their own country.

The death of Neil Armstrong is a time to remember the optimism that we once held, an optimism of a future in which humanity could conquer and withstand with good old Yankee ingenuity-- well, OK, human ingenuity. It was ingenuity and that was all that mattered during those crucial moments of the moon landing. Human rationality had its critics in society even then. So did the space program. Some opposed secular values and the heresy of humans tampering with the heavens. Others opposed what they considered the abandonment of the ecology of the Earth. Yet, human ingenuity did the job and did it well. Also, human ingenuity ensured that we would have a humbler view of the cosmos and its vast distances. We also valued Earth more and not less when we saw our planet as a blue ball in space, precious in a vast cosmos of black. Armstrong was a hero who helped us to see ourselves as less significant in the vast scheme of things, and yet a potentially heroic species none the less. Human rationality may have its critics, but it did pass the test, and passed the ultimate test of avoiding arrogance.

Earth is filled with life. How different is the moon! Armstrong landed on a moon shaped by lunar meteors and not by plate tectonics. Indeed, he landed on a world that was essentially lifeless.

Neil Armstrong might have been the first organism to set foot on the moon---ever. This means that life never had a chance to shape the moon.

Lunar craters would not be eroded. The lunar surface would not be erased by either wind or water. In a sense, Armstrong beheld a world that was unforgiving. But, in another sense, he beheld a world of immortal record keeping. The surface would be open to study by the trained human mind, with the sharp edges that spoke of no wind, rain, tree roots or traffic noise. Never before had a lifeless body ever excited the minds of young people the world over. Generations of

One Giant Leap *(Continued from the previous page)*

scientists and explorers were born with Armstrong's step on to a moon that had no mysterious creatures, gold, or thought of immediate settlement. The only hope was knowledge and that proved enough for many people! I wish that Neil Armstrong was more vocal. It almost seems as though he receded from the headlines without much struggle. Since his time, we have pushed out in to space with robotic exploration. Human exploration to Mars and the Asteroids, if it is to come, will be a lot more of a feat than a trip to our nearest neighbor. The "firsts" of our future will have traveled a much longer distance. It would have been nice if Neil Armstrong had said more and left more of himself for us to cherish. As an explorer, he traveled further than anyone ever had before, and yet he left us with a mysterious silence. I think I have some sense of his reasons, but I still wish that he had left us with guidance. His reasons? I suspect that he instinctively knew that he had it easy compared to the Neil Armstrong's, or Nellie Armstrong's, of the future. The moon is not a stepping stone if we are really honest. The moon is a hop and skip compared to the distances to the planets and asteroids.

One wonders who will be the "first" to land on Mars, if indeed the arc of the human future bends in that direction. I suspect that she might be Chinese, Indian, or perhaps American. If she is American, she might be part Native American or perhaps Lebanese-American. She might also be Israeli, or perhaps from one of the economically rising African countries. She will have traveled a lot further than Neil Armstrong. Neil Armstrong probably realized that she would look at his iconic walk as quaint in some respects. He was humble enough to realize this, and yet she still probably would have loved to read more about his thoughts as she takes one small step for a woman, one giant leap for humankind. As it is, she will have to content herself with the knowledge that the courage of Neil Armstrong and the other astronauts paved the way for future generations. Without the willingness of people to travel to the moon when technology was still very simple, the inspiration for great leap of humanity that our future heroes will know of would never have happened.

Neil Armstrong deserves to rest in peace. Whether his life inspires future travel to the orbits of other plants, or whether our species remains wedded to the biological matrix of Earth, I am glad for the one small step he made. It was one giant leap for our hopes and dreams in a divided world. RIP.

LETTER TO THE EDITOR – LETTER TO THE EDITOR – LETTER TO THE EDITOR – LETTER TO THE EDITOR – LETTER TO THE EDITOR

Comments on Scientific Illiteracy – Reasons Why

By Dick Flasck

In last month's MDAS newsletter in his article Scientific Illiteracy – Reasons Why, Nathaniel Bates explores this serious issue. In a spirit of friendship and civility, I respectfully must take issue with many of the speculations, arguments and conclusions of my colleague. I will not address each issue here, but only a few.

The article starts with an expression of incredulity that one in five Americans believes the sun orbits the earth. Firstly, the National Science Foundation (NSF) study cited in the article goes on to show in table 7-12 (http://www.nsf.gov/statistics/seind06/pdf_v2.htm) that the percentage is skewed by the elderly and high school drop outs. Secondly, the US population has a mean IQ of 100 with a standard deviation of 15. This means that approximately 7% of the population has an IQ of less than 78. So considering the number of elderly, the number of dropouts and the number of people with IQs below 78 that were included in the NSF survey cited, I do not find it shocking at all that one in five survey respondents thinks that the sun orbits the earth.

There is a further question of the motivation of the NSF survey respondents to learn science. Most people seek to maximize pleasure and minimize pain. I do not find it hard to believe that, for at least 20% of the population, knowing the relative motions of the earth and sun has little or no bearing on the pleasure/pain ratio in their everyday lives. Therefore, any immediate motivation for the 20% to ponder such (personally) irrelevant questions may be absent. In my life, I am deeply involved in science and technology, and for me, there is little motivation to find out (or remember) whether Tom Cruise divorced Nicole Kidman or Nicole Kidman divorced Tom Cruise.

Nathaniel goes on to state he was angry that people "…. could be allowed to think anything but what Galileo proved four centuries ago." Fortunately, in the USA we have the First Amendment to the Constitution. We can think and believe anything we damn well please. We are endowed by our Creator with certain unalienable Rights, including freedom of speech and religion. We need not seek permission from government or society to "allow" our thoughts. Thank God we do not yet have thought police. In addition, the use of the verb "proved" is troubling. In science, theories are simply cogent useful models that are supported by empirical evidence. They cannot be "proved." "Proofs" are part of the antiseptic artificial construct of mathematics, not the delightful real-world messiness of science.

As an aside, science is not a democracy. Just because a majority of scientists accepts a particular theory at a particular time, does not make that theory "correct." Nature notes not, nor cares one whit about, the convictions of a group of scientists. In fact, any honest scientist will admit that every theory (even the vaunted General Relativity) is wrong in the sense that there are regimes in which the theory predicts results not borne out by experiment. Furthermore, had Einstein not been "allowed to think anything but what [Newton] had proved four centuries ago," General Relativity would never have been developed!

Nathaniel then laments that "Only 35% [of us] believe in the Big Bang." Again, words are important. The use of "believe" is troubling, and in my opinion should be left out of scientific discussions. Concepts like the Big Bang can be accepted or rejected. Such acceptance or rejection should be based on 1) the definition of terms and 2) a thoughtful examination of the evidence.

Actually, in the NSF survey, the "Big Bang" question was in the form of this statement, "The universe began with a huge explosion." requiring a true or false response. The NSF says "true" is the correct answer. The survey respondents, however, had to guess at what the NSF meant by the terms "universe", "began", and "explosion." At best, the NSF question/statement is irresolvably ambiguous.

A quick Google search of: "Was the Big Bang an explosion?" shows most sites say it indeed was NOT an explosion. This includes the NASA WMAP website

LETTER TO THE EDITOR – LETTER TO THE EDITOR – LETTER TO THE EDITOR – LETTER TO THE EDITOR – LETTER TO THE EDITOR

Comments on Scientific Illiteracy – Reasons Why *(Continued from the previous page)*

http://map.gsfc.nasa.gov/site/faq.htm which reads:

Question: "Was the Big Bang an explosion?" NASA Answer: "No, the Big Bang was not an explosion. We don't know what, exactly, happened in the earliest times, but it was not an explosion in the usual way that people picture explosions. There was not a bunch of debris that sprang out, whizzing out into the surrounding space. In fact, there was no surrounding space. There was no debris strewn outwards. Space itself has been stretching and carrying material with it." So I guess most NASA WMAP scientists would have answered the NSF question as "false" and been placed in the dunce category by the NSF and Nathaniel. Go figure!

Furthermore, many secular humanists loudly promote the false notion that one can "believe" in the Big Bang or God, but not both. Many religious folks may have bought into that false dichotomy and voted "false" just to affirm their belief in God.

Finally, many folks (including me) certainly accept that A Big Bang occurred 13.75 billion years ago, but reject the notion of THE Big Bang which purportedly created all reality from absolute nothingness occurred.

A far less ambiguous, and more accurate statement that the NSF survey could have used, like: "At the beginning of the observable universe, there was a rapid expansion of space called the Big Bang." would probably have garnered many more "true" votes – including votes from NASA scientists, more religious folks, and even me.

The reader of the MDAS article is then treated to the tiresome canard regarding the purported conflict between religion and science. The article blames religion for scientific illiteracy, citing church condemnation of both evolution and separation of church and state.

However, even the left-leaning organization National Center for Science Education (having a mission of "defending the teaching of evolution and climate change") on its website http://ncse.com/rncse/18/2/what-do-christians-really-believe-evolution states: ". . .that of Americans in the 12 largest Christian denominations, 89.6% belong to churches that support evolution education! Indeed, many of the statements in Voices insist quite strongly that evolution must be included in science education and "creation science" must be excluded."

Interestingly it appears that mostly secular humanists, not mainstream religions, (falsely) declare a conflict over Darwinian evolution. A quick look at:
http://academic.regis.edu/mghedott/evolut.htm

or:
http://www.patheos.com/Resources/Additional-Resources/Evolution-Sunday-Michael-Zimmerman-2-7-2011.html

or:
http://en.wikipedia.org/wiki/Level_of_support_for_evolution

shows that almost all major denominations in the USA including the Mainline Protestant and Catholic Churches (with the notable exceptions of the Southern Baptists and the Pastafarians (http://www.venganza.org/)) accept Darwin's theory of evolution.

In particular, the Catholic Church provides tremendous support for a large number of traditional astronomy and other science programs. The Catholic Church has no problem with either Darwinian evolution or the Big Bang. That science and mainstream religion are incompatible is just flat-out wrong. I believe this contrived conflict is generally intended to malign and marginalize us mainstream religious folks.

Nathaniel's next assertion that religion is "attempting to end the separation of church and state so strongly encouraged by Thomas Jefferson." is an unfortunate inversion of both history and truth. The purpose of the First Amendment and the concept of separation of church and state was not to protect the government from churches. It was the exact opposite. It was to protect churches and the right to freely worship from tyrannical government. And it still is. Again, a quick internet check

LETTER TO THE EDITOR – LETTER TO THE EDITOR – LETTER TO THE EDITOR – LETTER TO THE EDITOR – LETTER TO THE EDITOR

Comments on Scientific Illiteracy – Reasons Why *(Continued from the previous page)*

shows that none of the mainstream Christian churches in the USA are calling for a theocracy. Indeed, the most potent attack against separation of church and state and religious freedom comes from the US Department of Health and Human Services (HHS) of the federal government, not from any church. See http://www.usccb.org/issues-and-action/religious-liberty/march-14-statement-on-religious-freedom-and-hhs-mandate.cfm

To Nathaniel's credit (but to the detriment of his argument), he admits that, to his surprise, atheist China and secularist Europe have even WORSE scientific illiteracy than we benighted Americans, clinging to our God and our guns. Go figure (again)!

The article concludes with an ominous threat that uber-environmentalism and unspecified global societal problems demand "a crazy solution." My response (to quote Beavis and Butthead S04E31) is:"Are you threatening me?!"

One should take care when attacking another's religion, politics, or freedoms. If such an attack is deemed necessary, a well supported position is advisable and push-back should come as no surprise. Nevertheless, MDAS should thank Nathaniel for broaching the important issue of scientific illiteracy, because further discussion could result in improvement of the MDAS mission and of our Outreach programs.

Scopes Needed – Day and Night

The school season is open, first at the popular Walnut Creek Intermediate school September 20, then a public solar-gazing event at the Lafayette Libarary, the day after our public program on Mt. Diablo. Please signup if you can make it.

Thank you and Hope to see you out there. . .
Jim Head

Upcoming Mount Diablo Astronomical Society Events:

Thursday September 20, 2012 — 7:30 p.m. - 9:00 p,m,
Walnut Creek Intermediate Stargazing, Walnut Creek Intermediate, Walnut Creek, CA Setup 6:30 p.m.

Saturday September 22, 2012 — 6:30 p.m. - 11:00 p.m.
Public Astronomy Program & Int'l Observe the Moon Night, Mount Diablo - Lower Summit Parking Lot, Clayton, CA Setup 5:30 PM

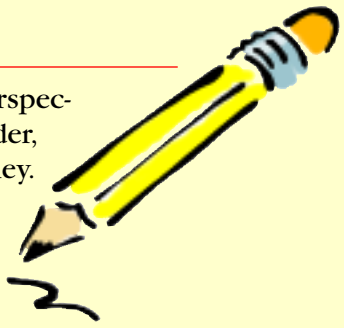
Sunday September 23, 2012 — 2:00 p.m. - 5:00 p.m.
Sun-Day at the Lafayette Library and Learning Center, Lafayette Public Library, Lafayette, CA Setup 1 PM

Thursday October 4, 2012 — 7:00 p.m. - 8:30 p.m.
Twin Creeks Stargazing, Twin Creeks Elementary, San Ramon, CA Setup 6:00 p.m.

Mount Diablo Astronomical Society Event Calendar–September 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1 Sunset: 7:39 PM
2	Labor Day 3	4	5	6	7	Observatory Maintenance (Private) 8 Sunset: 7:28 PM
9	Board Meeting (Private) 10	MDAS Imaging SIG (Private) 11	12	13	14	Society Observing (Private) 15 Sunset: 7:17 PM
16	17	6:00 PM Telecon: How it Began 18	19	WCI Stargazing (Private) 20	21	InOMN 22 6:30 PM Public Astronomy & InOMN Sunset: 7:06 PM
2:00 PM Sun-Day at LLLC 23	24	7:15 PM GenMtg: Mayan Astronomy 25	26	27	28	12:00 PM Docent Training Session 29 Sunset: 6:55 PM
30	1	2	3	4	5	6

Writers Wanted



We are always looking for new articles and content. If you have astronomical perspectives or experiences to share with your fellow members that you would us to consider, please feel free to contact me (cford81@comcast.net) or our newsletter editor Vianney. (veloroute@hotmail.com)

Clear skies!

Mount Diablo Astronomical Society
Diablo MoonWatch
September 2012

Board Members & Address

President
Chris Ford - cford81@comcast.net

Vice President
Rick Linden - Rick.C.Linden@gmail.com

Membership Coordinator, Mtg Room
Marni Berendsen - berendsen@aol.com

Meeting Program Chair
Dick Flasck - rflasck@aol.com

Outreach Coordinator, AANC Rep
Jim Head - jamesnhead@comcast.net

Publicity Board Member
Steve Jacobs - llasjacobs@astound.net

Observing Committee Chair, Board Member
Richard Ozer - rozer@pacbell.net

Whats Up Coordinator, Board Member
Kent Richardson - kayarind@sbcglobal.net

Treasurer
Will Roberge - wil@donahue.com

Newsletter Editor
Vianney - veloroute@hotmail.com

Webmaster
Glenn Spiegelman - gspie@comcast.net

Secretary and Refreshments
Moon Trask - metallicamoon@sbcglobal.net

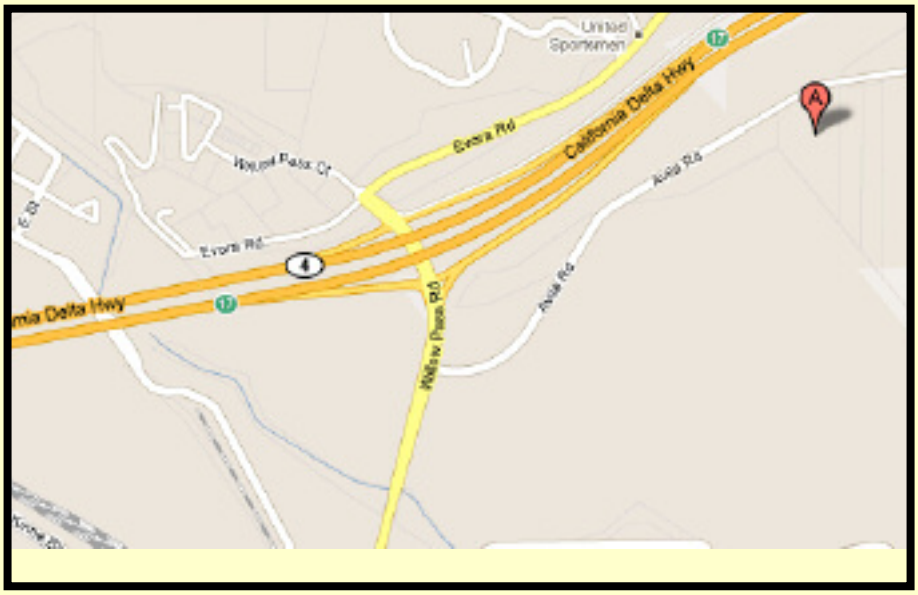
New Member Steward
Nick Tsakoyias - claytonjandl@aol.com

Mailing address:
MDAS
P.O. Box 4889
Walnut Creek, CA 94596-3754

General Meetings:
Fourth Tuesday every month, except on the third Tuesday in November and December. Refreshments and conversations Meetings begin at 7:15pm.

Where:
Concord Police Association
5060 Avila Road, Concord, CA 94596-3754
The last meeting at this address will be in December 2012.

Directions to facility:
Avila Road is off Willow Pass Road. Turn east onto Avila Road approximately 300 yards south of the Willow Pass Road off-ramp from the Route 4 freeway. Turn right into the Police Association Facility at the crest of the first hill.



What's Up

(Continued from first page)

many older than our sun, they concluded technical societies are abundant. Indeed, as A.C. Clark said, "To us, their science might be indistinguishable from magic."

Enrico Fermi, Nobel Prize Winning Physicist and one of the world's greatest scientists, took an active part in the discussions. He would cut to the critical core with order of magnitude calculations. For example, one question he asked his students at the University of Chicago was, "How many piano tuners are there in Chicago?" Using logic, and some calculations, he took them to a reasonable estimate. Most physics and astronomy grad students take a course in order of magnitude calculations that traces back to Fermi.

With discussions concluding there were many technological societies in our galaxy, Fermi's calculations drove him to ask, "Okay, if there are so many, where are they?" If they were as abundant as his calculations showed (Summer 1950) they should have visited earth and said, "Please take me to your leader." This segued into an article in Physics Today (summer 1951) entitled "Fermi's Paradox." Simply stated, it asks, if there are many technological societies out there older than ours, where are they?

My affair with Fermi's Paradox began in 1963. A visiting professor at Cornell conducted a series of seminars on topical issues for grad students in science. One was "What would Fermi say today?" Since then, I like to examine what we know that Fermi didn't, and ask, "What would Fermi say today?" We'll do that in this "What's Up;" I'll share what I think he'd say and I'd like to hear your ideas.